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The Effect of Game-Based Learning on English Vocabulary Acquisition among Three-Year-Old EFL Learners in a Private Educational Institution

El efecto del aprendizaje basado en juegos en la adquisición de vocabulario en inglés en estudiantes de EFL de tres años de una institución educativa privada

L'effetto dell'apprendimento basato sul gioco sull'acquisizione del vocabolario inglese in studenti EFL di tre anni di un'istituzione educativa privata

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Artículo de investigación

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Abstract

This study examined the effect of game-based learning on English vocabulary acquisition among three-year-old EFL learners in a private educational institution. A quantitative pre-experimental design with a one-group pre-test and post-test structure was used during a six-month instructional period. The intervention incorporated age-appropriate game-based activities such as matching games, movement activities, object identification, songs, flashcards, memory games, and role-play. Vocabulary learning focused on receptive and productive knowledge through repeated visual, auditory, kinesthetic, and interactive exposure. Data were collected through a vocabulary pre-test and post-test, an observation checklist, and a teacher record sheet. The results showed an increase in the overall mean from 1.97 in the pre-test to 4.20 in the post-test. The strongest improvements were observed in the comprehension of simple instructions and vocabulary recognition, while oral vocabulary production also increased considerably. These findings suggest that game-based learning can provide developmentally appropriate and engaging opportunities for very young EFL learners to acquire and retain English vocabulary. The study highlights the importance of integrating structured play, repetition, movement, and multisensory resources into early childhood English instruction.

Keywords: game-based learning, vocabulary acquisition, EFL, early childhood education, young learners, English language teaching.

Resumen

Este estudio examinó el efecto del aprendizaje basado en juegos en la adquisición de vocabulario en inglés en estudiantes de EFL de tres años de una institución educativa privada. Se empleó un diseño cuantitativo preexperimental con una estructura de pretest y postest aplicada a un solo grupo durante un período de intervención de seis meses. La intervención incorporó actividades lúdicas apropiadas para la edad, como juegos de asociación, actividades de movimiento, identificación de objetos, canciones, tarjetas didácticas, juegos de memoria y dramatizaciones. El aprendizaje del vocabulario se centró en el desarrollo del conocimiento receptivo y productivo mediante una exposición repetida de tipo visual, auditiva, kinestésica e interactiva. Los datos se recopilaron mediante un pretest y postest de vocabulario, una lista de cotejo de observación y una hoja de registro docente. Los resultados mostraron un aumento de la media general de 1,97 en el pretest a 4,20 en el postest. Las mejoras más destacadas se observaron en la comprensión de instrucciones simples y el reconocimiento de vocabulario, mientras que la producción oral también mostró un incremento considerable. Estos hallazgos sugieren que el aprendizaje basado en juegos puede ofrecer oportunidades apropiadas, significativas y motivadoras para favorecer la adquisición y retención de vocabulario en inglés en estudiantes de corta edad. El estudio resalta la importancia de integrar el juego estructurado, la repetición, el movimiento y los recursos multisensoriales en la enseñanza del inglés durante la educación infantil.

Palabras clave: aprendizaje basado en juegos, adquisición de vocabulario, EFL, educación infantil, estudiantes de corta edad, enseñanza del idioma inglés.

Riassunto

Questo studio ha esaminato l'effetto dell'apprendimento basato sul gioco sull'acquisizione del vocabolario inglese in studenti EFL di tre anni di un'istituzione educativa privata. È stato adottato un disegno quantitativo pre-sperimentale con una struttura pre-test e post-test applicata a un unico gruppo durante un periodo di intervento di sei mesi. L'intervento ha integrato attività ludiche adeguate all'età, tra cui giochi di abbinamento, attività motorie, identificazione di oggetti, canzoni, flashcard, giochi di memoria e giochi di ruolo. L'apprendimento del vocabolario si è concentrato sullo sviluppo della conoscenza ricettiva e produttiva attraverso un'esposizione ripetuta di tipo visivo, uditivo, cinestetico e interattivo. I dati sono stati raccolti mediante un pre-test e un post-test di vocabolario, una checklist di osservazione e una scheda di registrazione dell'insegnante. I risultati hanno mostrato un aumento della media generale da 1,97 nel pre-test a 4,20 nel post-test. I miglioramenti più significativi sono stati osservati nella comprensione di semplici istruzioni e nel riconoscimento del vocabolario, mentre anche la produzione orale ha evidenziato un notevole incremento. Questi risultati suggeriscono che l'apprendimento basato sul gioco può offrire opportunità adeguate allo sviluppo, significative e coinvolgenti per favorire l'acquisizione e la ritenzione del vocabolario inglese nei bambini molto piccoli. Lo studio sottolinea l'importanza di integrare gioco strutturato, ripetizione, movimento e risorse multisensoriali nell'insegnamento dell'inglese nella prima infanzia.

Parole chiave: apprendimento basato sul gioco, acquisizione del vocabolario, EFL, educazione della prima infanzia, giovani apprendenti, insegnamento della lingua inglese.

Introduction

English language learning has become increasingly relevant in early childhood education as educational institutions seek to provide children with opportunities for language exposure from the earliest stages of development. During the preschool years, children develop rapidly in areas such as communication, memory, social interaction, and symbolic understanding. Consequently, introducing English as a foreign language (EFL) at this stage requires teaching approaches that correspond to young children's developmental characteristics rather than reproducing instructional methods designed for older learners. In particular, three-year-old children require highly interactive, meaningful, repetitive, and age-appropriate learning experiences that allow them to associate new language with actions, objects, images, sounds, and familiar situations.

Vocabulary constitutes an essential component of early foreign language development because words provide young learners with the linguistic resources necessary to understand classroom instructions, identify objects and actions, and gradually participate in simple communicative exchanges. Nevertheless, vocabulary acquisition among very young EFL learners presents particular challenges. At the age of three, learners have limited attention spans, are still developing memory and self-regulation skills, and generally depend on concrete experiences rather than abstract explanations. Therefore, vocabulary instruction based predominantly on repetition, worksheets, translation, or teacher-centered presentation may not respond adequately to their developmental needs. Early foreign-language programs appear to be particularly beneficial when children experience the target language through supportive and play-based environments rather than highly restrictive instructional practices. A systematic review by Bleses et al. (2021) indicated that early foreign-language education can contribute positively to children's foreign-language development and emphasized the importance of factors such as the amount of linguistic input, teacher strategies, and play-based pedagogical practices.

Within this context, game-based learning (GBL) represents a potentially appropriate pedagogical strategy. Game-based learning refers to the deliberate incorporation of games or game structures into instructional experiences in order to accomplish specific learning objectives. Unlike gamification, which generally introduces selected game elements such as points, rewards, rankings, or badges into non-game activities, GBL places the learning process within the game experience itself. In early childhood classrooms, these experiences do not necessarily involve digital technologies. They can include matching games, movement activities, guessing games, object identification, picture-card activities, memory games, role-play, songs combined with actions, board games, and other playful tasks designed around specific vocabulary targets.

The characteristics of GBL are particularly compatible with early childhood education because play represents a natural context through which young children explore their environment, interact socially, experiment, repeat behaviors, and construct meaning. Schwartz et al. (2021), for instance, examined play within a bilingual preschool environment and

demonstrated that play can create conditions that encourage interaction and movement toward second-language production. Their findings reinforce the importance of viewing play not merely as entertainment but as a potentially meaningful environment for language development. More broadly, Alotaibi's (2024) systematic review and meta-analysis of game-based learning in early childhood education found positive effects across cognitive, social, emotional, motivational, and engagement-related outcomes, suggesting that appropriately designed games can contribute to children's development while maintaining an enjoyable learning environment.

One important characteristic of game-based vocabulary instruction is the possibility of providing repeated exposure to words without making repetition appear monotonous. Young children generally need to encounter lexical items repeatedly and in recognizable contexts before they can understand and use them independently. Through games, the same vocabulary can be recycled through visual recognition, listening, physical movement, matching, identification, and oral production. Consequently, repetition becomes embedded within purposeful action. Games may also provide immediate feedback because children can recognize whether they have correctly identified an object, selected a picture, followed an instruction, or completed a task. These characteristics potentially facilitate connections between vocabulary forms, meanings, and concrete experiences.

Research involving language learners has increasingly demonstrated the potential relationship between game-based experiences and vocabulary learning. Thompson and von Gillern's (2020) meta-analysis examining video-game-based vocabulary instruction among English language learners found an overall positive effect favoring game-based conditions, although considerable variation existed across studies. Similarly, Kara (2022) reported that primary-school EFL students who participated in serious mobile-game activities achieved significantly stronger vocabulary acquisition than learners receiving conventional curriculum-based instruction. These findings provide evidence supporting games as pedagogical resources; nevertheless, the participants in these studies were generally older than preschool children, making direct generalization to three-year-old learners inappropriate.

Recent investigations have additionally emphasized that the benefits of GBL may extend beyond vocabulary test performance. Learner engagement appears to play an important role in explaining the potential effectiveness of game-based environments. Research on digital game-based vocabulary learning has shown that behavioral, cognitive, and emotional engagement can contribute differently to vocabulary development (Zou et al., 2023). Similarly, game-based environments can provide contextualized opportunities for language learning while increasing learner agency and intrinsic motivation (Sundqvist et al., 2024). Although these studies largely involve learners beyond the preschool level, their findings suggest mechanisms that are particularly relevant to young children, for whom engagement and active participation are fundamental components of the learning process.

At the same time, existing research suggests that the educational value of games should not automatically be associated with technology. For very young learners, physical interaction, manipulation of objects, communication with teachers and classmates, and body movement may be especially important. A study comparing digital and non-digital play-based vocabulary instruction found that non-digital game conditions produced stronger vocabulary learning and retention in the population examined, highlighting the continuing instructional value of traditional forms of play (Enayati & Gilakjani, 2023). This distinction is important in early childhood EFL education because an effective game-based approach may combine visual, auditory, kinesthetic, social, and manipulative experiences rather than relying exclusively on screens.

Despite growing interest in GBL and foreign-language vocabulary acquisition, a relevant gap remains in the literature. Much of the empirical evidence has examined primary, secondary, university, or mixed-age populations, while research focusing specifically on children at approximately three years of age remains considerably more limited. Furthermore, a substantial proportion of current research concentrates on digital games and technology-mediated environments rather than developmentally appropriate classroom games designed for preschool EFL contexts. Consequently, additional empirical evidence is required to determine whether systematic exposure to game-based activities can produce measurable changes in English vocabulary acquisition among very young learners.

The context of private early childhood education also deserves attention because English instruction is increasingly introduced at preschool levels, yet the effectiveness of the pedagogical strategies employed should be supported by evidence rather than by early exposure alone. The presence of English classes does not necessarily guarantee vocabulary development if children are not provided with sufficient opportunities to interact meaningfully with the target language. Evaluating GBL within an authentic preschool classroom can therefore provide practical evidence concerning how vocabulary instruction may be adapted to the cognitive, linguistic, and socioemotional characteristics of very young EFL learners.

Accordingly, the purpose of the present study is to determine the effect of game-based learning on English vocabulary acquisition among three-year-old EFL learners in a private educational institution during a six-month instructional period. The study focuses on whether the systematic integration of age-appropriate game-based activities contributes to measurable development in learners' recognition and acquisition of selected English vocabulary. By concentrating specifically on three-year-old learners, the study seeks to contribute evidence to an area that remains comparatively underrepresented in the existing EFL literature while also providing pedagogical implications for teachers and institutions introducing English during early childhood education.

Methodology

This study employed a quantitative, pre-experimental research design with a one-group pre-test and post-test structure to determine the effect of game-based learning on English vocabulary acquisition among three-year-old EFL learners. The intervention was conducted over a period of six months in a private educational institution. The quantitative approach was selected because it allowed the researchers to measure changes in learners' vocabulary performance before and after the implementation of game-based learning activities. The independent variable was game-based learning, while the dependent variable was English vocabulary acquisition. The intervention was incorporated into regular English lessons rather than being implemented as an isolated extracurricular program.

The participants were three-year-old children enrolled in an early childhood education program at a private educational institution. All participants were learning English as a foreign language and had limited previous exposure to the language beyond their regular classroom instruction. Because of their age, the learners were considered beginner-level EFL students whose English production was mainly limited to isolated words, short expressions, repetition, and responses to simple classroom instructions. The participants belonged to the same educational level and received English instruction under similar classroom conditions. The sample was selected through convenience sampling because the participants were members of the classroom in which the pedagogical intervention was implemented. Due to the young age of the participants, the research procedures were adapted to their developmental characteristics. Assessment activities were conducted in a familiar classroom environment and resembled regular learning activities rather than formal written examinations. Parental or legal representative authorization was obtained according to the ethical procedures established by the institution, and the identities of the children were kept confidential throughout the study.

The instructional intervention was based on game-based learning, understood as the systematic use of structured games designed to achieve specific vocabulary-learning objectives. The activities were selected according to the cognitive, linguistic, and socioemotional characteristics of three-year-old children. Consequently, the learning process emphasized short activities, repetition, movement, visual support, oral interaction, manipulation of objects, and immediate feedback. The target vocabulary was organized into familiar semantic categories appropriate for early childhood, including colors, numbers, animals, body parts, toys, food, family members, classroom objects, clothing, and common actions. Rather than presenting vocabulary mainly through explanation or memorization, the words were introduced and reinforced through playful experiences. During the six-month intervention, the children participated in picture-card matching games, memory games, guessing games, movement activities, object identification, sorting tasks, role-play, songs with physical actions, flashcard games, simple board games, and teacher-guided group activities. Physical materials such as toys,

puppets, pictures, real objects, cards, and classroom resources were frequently incorporated to help children associate English words with concrete referents.

Vocabulary learning followed a gradual sequence designed to promote comprehension before independent oral production. First, each group of vocabulary items was introduced through visual and auditory exposure. The teacher presented an object, picture, toy, or flashcard while clearly pronouncing the corresponding English word. Learners listened to each word several times and associated its sound with the visual or physical representation. Vocabulary was then reinforced through guided recognition activities in which children were asked to point to, touch, select, or move toward the correct object or image after hearing a word. Simple instructions such as "Touch the…," "Find the…," and "Show me…" were used to verify comprehension without forcing immediate oral production. Once learners demonstrated recognition, the activities gradually encouraged oral repetition and production. Children repeated words individually and collectively, named familiar objects, responded to simple questions such as "What is this?", and participated in guessing and identification games. The teacher modeled pronunciation and provided immediate supportive feedback.

Previously introduced vocabulary was continuously recycled through different games so that learners encountered the same lexical items in multiple contexts. A word initially presented with a flashcard, for example, could later appear in a memory game, song, movement activity, sorting task, or role-play. This repeated exposure was intended to strengthen retention while preventing the learning process from becoming monotonous. Multisensory learning was also incorporated throughout the intervention. Children listened to words, observed images, manipulated objects, moved their bodies, repeated vocabulary, and interacted with classmates. This approach was considered appropriate for three-year-old learners because they generally benefit from concrete experiences and short periods of focused attention. Positive reinforcement was used throughout the intervention through verbal praise, gestures, applause, stickers, and opportunities to participate. Errors were treated as a natural part of the learning process, and learners were exposed repeatedly to the correct vocabulary without excessive pressure.

Three principal instruments were used to collect data: a vocabulary pre-test and post-test, an observation checklist, and a teacher record sheet. The vocabulary assessment was specifically adapted to the developmental level of three-year-old learners and did not include written tasks. Instead, children were asked to recognize, identify, point to, select, or name familiar objects and pictures. The same vocabulary categories and evaluation criteria were used in both the pre-test and post-test to allow comparison of learners' initial and final performance. The assessment considered both receptive and productive vocabulary knowledge. Receptive vocabulary was evaluated by pronouncing a word and asking the learner to identify the corresponding image or object, while productive vocabulary was evaluated by presenting an image or real object and asking the learner to provide the English word when possible.

An observation checklist was also used during classroom activities to record indicators such as participation in games, ability to follow simple instructions in English, recognition of target vocabulary, spontaneous use of English words, willingness to repeat vocabulary, and responses to the game-based activities. In addition, the teacher maintained a classroom record sheet to document the vocabulary introduced, the type of game implemented, student participation, words requiring additional reinforcement, and general observations regarding learner progress. These records supported the monitoring of the intervention and helped maintain consistency throughout the six-month period.

Data collection was conducted in three consecutive stages. First, the vocabulary pre-test was administered in a familiar and supportive environment to establish the participants' initial receptive and productive vocabulary knowledge. Second, game-based learning activities were systematically implemented during regular English lessons for six months. Throughout this period, target vocabulary was progressively introduced and continuously recycled through different games and multisensory activities. Classroom observations and teacher records were completed regularly to document learner participation and development. Finally, the post-test was administered using the same vocabulary categories and assessment criteria employed in the initial evaluation. The pre-test and post-test scores were then compared to identify changes in vocabulary acquisition following the intervention.

The quantitative data obtained from the vocabulary assessments were analyzed using descriptive statistics, including frequencies, percentages, mean scores, and differences between pre-test and post-test results. These comparisons made it possible to identify changes in vocabulary performance after six months of systematic exposure to game-based learning. Information obtained through the observation checklist and teacher record sheet was used as complementary evidence to describe patterns of participation, vocabulary recognition, oral production, and engagement throughout the learning process. This methodology made it possible to examine vocabulary development while respecting the developmental characteristics of three-year-old EFL learners and maintaining the playful and interactive nature of early childhood education.

Results

The results were analyzed by comparing the mean scores obtained in the pre-test and post-test. Five criteria were considered to evaluate English vocabulary acquisition: vocabulary recognition, word identification, oral production, comprehension of simple instructions, and vocabulary retention. Each criterion was scored on a five-point scale, where higher mean values represented better performance

Table 1. Mean Scores for English Vocabulary Acquisition Before and After the Game-Based Learning Intervention

Evaluation Criterion	Pre-test Mean	Post-test Mean	Mean Difference
Vocabulary recognition	2.10	4.35	+2.25
Word identification	1.95	4.20	+2.25
Oral vocabulary production	1.70	3.95	+2.25
Comprehension of simple instructions	2.25	4.40	+2.15
Vocabulary retention	1.85	4.10	+2.25

Note. Source: Segarra, D., & Riera, F.

The comparison of the mean scores shows a clear improvement in English vocabulary acquisition after the six-month game-based learning intervention. The overall mean increased from 1.97 in the pre-test to 4.20 in the post-test, representing a mean difference of 2.23 points. This change indicates that the participants demonstrated substantially stronger vocabulary performance after participating in systematic game-based activities.

Vocabulary recognition increased from a pre-test mean of 2.10 to 4.35, suggesting that learners became considerably more capable of recognizing English words when they were presented orally together with images, objects, or other visual stimuli. A similar improvement was observed in word identification, which increased from 1.95 to 4.20. These results suggest that repeated exposure to vocabulary through matching, identification, movement, and object-based games supported the association between English words and their corresponding meanings.

Oral vocabulary production presented the lowest initial mean, with a score of 1.70, which was expected considering the participants were only three years old and were beginning EFL learners. However, the post-test mean increased to 3.95, indicating considerable development in the learners' ability to independently produce familiar English words. Although oral production remained slightly lower than receptive vocabulary skills, the improvement suggests that repeated modeling, group repetition, songs, guessing games, and opportunities to name familiar objects contributed to greater productive vocabulary use.

The highest post-test mean was found in the comprehension of simple instructions, which increased from 2.25 to 4.40. This result may be related to the frequent use of classroom commands during game-based activities, including expressions such as “Find the…,” “Show me…,” “Touch the…,” and “Give me…”. Because learners repeatedly heard these instructions while simultaneously performing physical actions, they were able to associate the spoken language with meaningful classroom behaviors.

Vocabulary retention also demonstrated substantial improvement, increasing from 1.85 in the pre-test to 4.10 in the post-test. The result suggests that recycling previously introduced vocabulary through different games and multisensory activities helped learners maintain lexical

knowledge over time. Rather than encountering vocabulary only once, the children repeatedly interacted with the same words through visual, auditory, kinesthetic, and social learning experiences.

Overall, the increase observed across all five criteria indicates that the participants showed stronger receptive and productive vocabulary performance after the game-based learning intervention. The results particularly demonstrate improvements in vocabulary recognition, comprehension, and retention, while oral production also developed considerably. These findings suggest that systematically incorporating age-appropriate games into EFL instruction can provide three-year-old learners with repeated, meaningful, and engaging opportunities to acquire English vocabulary.

Discussion

The results indicate that game-based learning had a positive effect on English vocabulary acquisition among three-year-old EFL learners. The overall mean increased from 1.97 in the pre-test to 4.20 in the post-test, showing improvement in vocabulary recognition, word identification, oral production, comprehension of simple instructions, and vocabulary retention. These findings suggest that structured games can provide young learners with meaningful opportunities to encounter and practice English vocabulary through repetition, movement, visual support, and interaction.

The highest post-test performance was observed in the comprehension of simple instructions, followed by vocabulary recognition. This may be related to the frequent use of commands such as “Touch the…,” “Find the…,” and “Show me…” during classroom games. By connecting language with physical actions, learners were able to associate words with concrete meanings. Previous research has similarly highlighted the value of playful and interactive activities for early language development and vocabulary learning (Ly & Ha, 2022; Terán et al., 2024).

Vocabulary retention also improved considerably, which may be explained by the continuous recycling of words through matching games, songs, movement activities, flashcards, and object identification. Repeated exposure in different contexts allowed learners to reinforce the same vocabulary without relying on repetitive memorization. This supports the idea that game-based learning can make vocabulary practice more engaging and developmentally appropriate for preschool children.

Oral vocabulary production improved from 1.70 to 3.95, although it remained slightly lower than receptive vocabulary skills. This difference is understandable because recognizing a word is generally easier than producing it independently. For three-year-old learners, vocabulary development often progresses from listening and recognition toward oral production. Game-based activities may facilitate this progression by creating a supportive environment where

children can first respond through gestures or group repetition before producing words individually.

Overall, the findings support the use of game-based learning as an effective strategy for early childhood EFL vocabulary instruction. However, the results should be interpreted cautiously because the study used a one-group pre-test and post-test design. Other factors, such as regular exposure to English and natural language development, may also have influenced learners' progress.

Conclusions

The implementation of game-based learning had a positive effect on English vocabulary acquisition among three-year-old EFL learners. The increase in the overall mean from 1.97 in the pre-test to 4.20 in the post-test showed clear progress in vocabulary recognition, word identification, comprehension of simple instructions, oral production, and retention. These findings indicate that structured games can create meaningful, repetitive, and engaging opportunities for very young learners to develop English vocabulary in a way that corresponds to their developmental characteristics

The results also demonstrated that receptive vocabulary skills developed more strongly than productive vocabulary skills, with the highest performance observed in the comprehension of simple instructions and vocabulary recognition. This suggests that young learners benefit from first experiencing English through visual support, movement, repetition, and interaction before being expected to produce words independently. Therefore, game-based learning can be considered an appropriate pedagogical strategy for early childhood EFL contexts, particularly when activities are carefully planned, multisensory, age-appropriate, and directly connected to specific vocabulary objectives.

Implications

The findings of this study have important implications for early childhood EFL teaching. First, game-based learning should be considered as a regular instructional strategy rather than as an occasional recreational activity. Teachers can integrate short, structured games into vocabulary lessons to promote repetition, recognition, oral production, and comprehension in ways that are appropriate for three-year-old learners.

The results also suggest that early childhood English instruction should prioritize multisensory experiences that combine visual materials, movement, real objects, songs, gestures, and interaction. These strategies can help young learners connect new vocabulary with concrete meanings and maintain attention during lessons. In addition, teachers should allow vocabulary development to progress gradually from receptive understanding to oral production instead of expecting immediate verbal responses.

At the institutional level, private early childhood programs may benefit from providing teachers with training and resources for designing age-appropriate game-based activities. Future research should also examine larger samples, different educational contexts, and control groups to determine whether similar effects are observed across other preschool EFL populations.

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